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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,399	10/16/2001	Tatsuya Kawahara	77661/57	3063

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EXAMINER

HODGE, ROBERT W

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/977,399

Applicant(s)

KAWAHARA ET AL.

Examiner

Robert Hodge

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10,19,25,29 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10,19,25,29 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/22/06 has been entered.

Response to Arguments

Applicant's arguments, see Remarks, filed 8/22/06, with respect to the rejection(s) of claim(s) 19 and 29 under 35 U.S.C. 102(e) & 102(b) respectively have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. 5,346,785 & U.S. 6,667,127.

The rest of applicant's arguments filed 8/22/06 have been fully considered but they are not persuasive. Applicants state that the Kato reference does not teach a solidified binder, a water repellent layer comprising multiple layers or a solidified mixture of carbon and synthetic resin. First and foremost the Examiner does not understand how applicants can state that the Kato reference does not teach a solidified binder or solidified mixture of carbon and synthetic resin, when the main purpose of a binder also resins is to form solid objects after the production process. Especially since the Kato

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reference clearly teaches a manufacturing process that produces an end product with high rigidity (column 1, line 62). Therefore it is clear to the Examiner that the final product of the Kato reference is solidified and applicants' amendments to claims 10 and 34 have not overcome the prior art and therefore the rejections will be maintained. As to the statement that Kato does not teach the limitations of claim 25, that is a water repellent layer having multiple layers, this argument was previously addressed in the Final Office Action dated 4/28/2006 and will not be reiterated herein and therefore since claim 25 have not been amended the rejection will also be maintained.

Applicants apparently are attempting to retract their earlier statement concerning whether the Examiner understand the claims as so recited by stating that they respectfully disagree with the Examiner's conclusions, but have still stated that "the Examiner's own remarks indicate that the Examiner understands the claims". Therefore since applicants cannot determine whether the Examiner does or does not understand the claims as so recited, the question of ambiguity has not been resolved and the rejections under 35 U.S.C. 112 will be reinstated.

Claim Objections

Claim 34 is objected to because of the following informalities: the word order of claim 34, line 4 seems to be improper, it appears applicants meant to state that the mixture of carbon and synthetic resin are solidified and not just solidified carbon. If however this was not a mistake then said recitation of "solidified carbon" is new matter. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 34 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As discussed in the above objection to claim 34 applicants have recited the limitation of "solidified carbon" which is not supported in applicants' specification and is therefore new matter. However also as discussed above it appears that applicants meant that the mixture was solidified and if this is the case the new matter rejection will be withdrawn upon recite of a properly amended claim reciting that the mixture is solidified, not just the carbon.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants use the terms "adhesiveness" and "strength" to describe specific properties of the different layers of their "multi-layer structure". However no recitation is made to how the different layers are actually structurally different from one another by

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the use of said terms. If a multilayer structure is present with different types of materials it is inherent that the different layers are going to be different in strength and adhesiveness. Therefore any multilayered structure with different types of materials as the layers reads on the claims as so recited.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 10, 25 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10261421 (U.S. Patent No. 6,127,059 is used as the English translation) hereinafter Kato.

Kato teaches a diffusion layer with at least a base layer (abstract lines 1-2) that has a water-repellent layer (abstract line 15, column 3, line 13 and column 4 line 15 et seq). Kato also teaches "a carbonized yarn of woven fabric [column 3, lines 39-42 and lines 46-47], and a carbonized binder impregnated into the yarn [column 4, lines 15 et seq]". It is inherent that a binder that is impregnated into a woven yarn would connect the filaments of the yarn together. Kato further teaches a non-woven base layer (column 6, lines 51 and 66) with a synthetic resin binder impregnated into it (column 5, lines 50-52), it being pressed (column 5, line 9) and carbonized (column 3, lines 39-42 and lines 46-47). Kato also teaches a base layer having opposite surfaces (column 6, line 34 and claim 6), that the water-repellent layer is a solidified mixture of carbon and synthetic resin (column 4, lines 15-16 and claim 4), and that the water-repellent layer is

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multi layered (column 1, lines 15 et seq). It is inherent that multiple layers would have different adhesive properties especially if they are applied to the substrate under different conditions such as disclosed by Kato (column 1, lines 29-31 or column 6 lines 4-8). Kato further teaches the use of two kinds of binders (column 4, lines 50-56). The examiner notes that of the materials disclosed by Kato, the order of use determines which material will have a higher rigidity. The examiner notes that the use of the phraseology "higher rigidity" is relative to the materials at hand and can change with any reference. The examiner further notes that all of the materials listed in the Kato reference have some sort of adhesive properties. Kato also teaches solidifying the carbon and synthetic resin mixture (column 5, lines 9-10) and the presence of filaments (column 5, line 46).

Claim Rejections - 35 USC § 102/103 & 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 19 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S Patent No. 6,667,127 hereinafter referred to as Beattie.

Beattie teaches a diffusion layer with at least a base layer that is made from a non-woven carbon paper made from carbon fibers (column 6, lines 56-57), a synthetic

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carbonized resin binder that is non-uniformly impregnated therein (column 6, lines 63-67, column 8, lines 66-67, column 8, line 51 and column 9, line 31), that the layers on the base layer would be differing in the amount binder used (column 9, lines 56-64 and claim 33) and a rigid portion of the base layer would be present (column 9, lines 61-62 and column 11, line 13). In the alternative a person having ordinary skill in the art would recognize by the teachings of the Beattie reference that different portions of the diffusion layer would be more rigid than others because the Beattie reference teaches a non-uniform impregnation of the synthetic carbonized resin binder and certain portions would than be inherently more flexible than the more rigid portions.

Claim 29 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kato.

Kato teaches everything in the above 102 rejection. In the alternative a person having ordinary skill in the art would recognize that the Kato reference teaches two separate water-repellent layers which would inherently have different properties from each other see column 4, lines 15-56.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of U.S. Patent No. 5,346,785 hereinafter Akuto.

Kato teaches everything in the above 102 rejection.

Kato does not explicitly teach the material of the second water-repellent layer but does still teach a second water-repellent layer.

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Akuto teaches a gas diffusion layer formed from cellulose (column 6, line 53 – column 7, line 10), which as applicants define in their specification is known for its water-repellent characteristics.

At the time of the invention it would have been obvious to a person having ordinary skill in the art to include the teaching of the Akuto reference in the Kato reference in order to provide a diffusion layer that uses a well known material for its water-repellent properties and is readily available for use in manufacturing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RWH


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER